

Remarks

Claims 1-13 and 31-37 are now pending in the application. Claims 14-30 have been cancelled without prejudice or disclaimer of the subject matter therein. Claims 1-13 are rejected. Claims 14-30 have been cancelled without prejudice or disclaimer of the subject matter therein. Claims 31-37 have been newly added. No new matter has been added. It is respectfully submitted that the pending claims define allowable subject matter.

In accordance with 37 C.F.R. 1.136(a), a request for a one (1) month extension of time is submitted herewith to extend the due date of the response to the Office Action dated October 6, 2004 for the above-identified patent application from January 6, 2005 through and including February 6, 2005. In accordance with 37 C.F.R. 1.17(a)(3), authorization to charge deposit account in the amount of \$60.00 to cover this extension of time request also is submitted herewith.

As an initial matter, headings have been added to the specification and line 11 on page 7 has been amended as required by the Office Action.

Claims 1, 3-6, 8, 9 and 12 have been rejected under 35 USC § 102(b) as being anticipated by Pichel (U.S. Patent 3,428,533) or Jochim (U.S. Patent 3,378,469). Applicants respectfully traverse these rejections.

Pichel describes a method for manufacturing a metal master for a parabolic mirror. In particular, a plastic sub-master having substantially the same shape and optical accuracy as a glass master is formed (column 3, lines 33-36). The plastic layer 13 is ridgidized with a member 14 by means of epoxy or other adhesive 15 and glass master 10 removed (column 3, lines 42-54). A replica metal master from the plastic sub-master is then prepared by immersing the sub-master in an electroplating bath (column 3, lines 59-63). The optical surface of the sub-master is sensitized or rendered electrically conducting by coating it with a thin film or layer of metal, such as silver, which is deposited on the optical surface of the plastic sub-master (column 3, lines 64-75).

Next, employing necessary control to ensure uniform stress-free deposition, a layer of nickel 17 is electroplated over silver layer 16 (column 4, lines 6-11). Proper circulation and temperature maintenance of the electroplating solution, uniform rotation of

the sub-master cathode, maintaining a uniform composition or strength of the electroplating solution, etc., are provided and which contribute to the deposition of a nickel layer of uniform thickness that is relatively stress free (column 4, lines 11-17). A backing or rigidizing structure 18 is mounted over the nickel layer, and with the rigidizing structure 18 firmly on nickel layer 17, the replica master structure separated from the plastic sub-master (column 4, lines 21-40). Then, the silver layer is chemically stripped from the nickel layer in such a manner that the optical surface of the replica master, which is the common surface between the silver and nickel layers, is not degraded (column 4, lines 45-49).

Jochim describes a similar method for fabricating an electroformed parabolic mirror using a parabolically-shaped glass master with the addition of removing the sub-master from the bath to apply a mesh structure that will become a rigid backing structure to support the nickel layer (column 4, lines 13-18). Thus, following the removal of the sub-master, a mesh backing structure 18 is mounted over nickel layer 17 (column 4, lines 18-20).

Claim 1, as amended, recites a method of manufacturing a telescope mirror comprising “releasing the mirror body (25) with the reflective layer (26) from the mandrel (10), the mirror body (25) and reflective layer (26) forming the telescope mirror.”

Neither Pichel or Jochim describes or suggests releasing a mirror body with the reflective layer to thereby form a telescope mirror. These references disclose removing a silver layer over nickel layer supported by a rigidizing structure and a single chemically stripping the silver layer from the nickel layer such that only a rigidizing structure and nickel layer remain. Therefore, these references fail to describe or suggest a telescope mirror formed by a mirror body and reflective layer as recited in claim 1. Accordingly, for at least the reasons set forth above, Applicants submit that claim 1 is patentable over Pichel and Jochim.

Claims 3-6, 8, 9 and 12 depend from independent claim 1. When the recitations of these claims are considered in combination with the recitations of claim 1, Applicants submit that these claims are likewise patentable over Pichel and Jochim for at least the same reasons set forth above.

Newly added claim 31 recites a method of manufacturing a telescoping mirror comprising “depositing a reflective layer (26) on the mandrel surface, an optical surface formed at an interface of the reflective layer (26) with the mandrel (10).”

The cited prior art does describe or suggest depositing a reflective layer on a mandrel surface with an optical surface formed at the interface of the reflective layer with the mandrel. In particular, and in contrast, Pichel and Jochim describe chemically stripping a silver layer from a nickel layer and to do so in such a manner that an optical surface of the replica master, which is a common surface between the silver and nickel layers, is not degraded. Accordingly, for at least the reasons set forth above, Applicants submit that claim 31 is patentable over the cited art.

Newly added claims 32 and 33 each depend from newly added independent claim 31, which is submitted to be in condition for allowance and patentable over the cited art. When the recitations of claims 32 and 33 are considered in combination with the recitations of claim 31, Applicants submit that dependent claims 32 and 33 are likewise patentable over the cited art for at least the reasons set forth above.

Newly added claim 34 recites a method of manufacturing a telescope mirror comprising “releasing the mirror body (25) with the reflective layer (26) from the mandrel (10), wherein an optical surface of the reflective layer (26) is formed on a side opposite the reflective layer (26)...” The cited art fails to describe or suggest a method as recited in newly added claim 34. In particular, neither Pichel or Jochim describe or suggest such a method, and in contrast, describe chemically stripping a silver layer from a nickel layer in such a manner that an optical surface of the replica master, which is the common surface between the silver and nickel layers, is not degraded. Accordingly, Applicants submit that claim 34 is patentable over the cited art.

Newly added claims 35-37 depend from newly added independent claim 34, which is submitted to be in condition for allowance and patentable over the cited art. When the recitations of claims 35-37 are considered in combination with the recitations of claim 34, and at least for the reasons set forth above, Applicants submit that dependent claims 35-37 are likewise patentable over the cited references.

Claim 2 is rejected under 35 USC § 103(a) as being unpatentable over Pichel or Jochim in view of George et al. (U.S. Patent 4,648,944) or Vaaler (U.S. Patent 4,786,376). Applicants respectfully traverse this rejection.

George et al. and Vaaler describe devices or gauges for measuring and monitoring internal stress during electroforming and/or electroplating processes.

Claim 2 recites “wherein the internal mechanical tension is measured during the electroforming process using an additional electroforming sample (18) which is electroformed in parallel or an electronic stress measurement device.” Applicants submit that even from a cursory review of George et al. or Vaaler, these references fail to make up for the deficiencies of Pichel or Jochim. Further, neither of these references describe or suggest measuring internal mechanical tension during an electroforming process using an additional electroforming sample. Further, claim 2 depends from independent claim 1, and when the recitations of claim 2 are considered in combination with the recitations of claim 1, Applicants submit that dependent claim 2 is likewise patentable over the cited references for at least the reasons set forth above.

Claim 7 has been rejected under 35 USC § 103(a) as being unpatentable over Pichel or Jochim in view of Engelhaupt et al. (U.S. Patent 6,406,611). Applicants respectfully traverse this rejection.

Applicants submit that even from a cursory review of Engelhaupt et al., this reference fails to make up for the deficiencies of either the Pichel or Jochim reference. Therefore, when the recitations of claim 7 are considered in combination with the recitations of independent claim 1, from which it depends, Applicants submit that dependent claim 7 is likewise patentable over the cited references for at least the reasons set forth above.

Claims 10 and 11 have been rejected under 35 USC § 103(a) as being unpatentable over Pichel or Jochim in view of Howden (U.S. Patent 4,484,798) or Marmo et al. (U.S. Patent 4,740,276). Applicants respectfully traverse this rejection.

Applicants submit that even from a cursory review of either Howden or Marmo et al., these references fail to make up for the deficiencies of either Pichel or Jochim. Therefore, when the recitations of claims 10 and 11, which depend from independent claim 1,

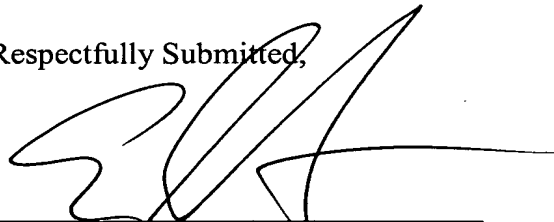
are considered in combination with the recitations of claim 1, Applicants submit that dependent claims 10 and 11 are likewise patentable over the cited references for at least the same reasons set forth above.

Claim 13 has been rejected under 35 USC § 103(a) as being unpatentable over Pichel or Jochim in view of Howden. Applicants respectfully traverse this rejection.

Applicants submit that even from a cursory review of Howden, this reference fails to make up for the deficiencies of either Pichel or Jochim. Therefore, when the recitations of claim 13, which depends from independent claim 1, are considered in combination with the recitations of claim 1, Applicants submit that dependent claim 13 is likewise patentable over the cited references for at least the same reasons set forth above.

In view of the foregoing amendments and remarks, it is respectfully submitted that the prior art fails to teach or suggest the claimed invention and all of the pending claims in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited. Should anything remain in order to place the present application in condition for allowance, the Examiner is kindly invited to contact the undersigned at the telephone number listed below.

Respectfully Submitted,



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